

REMARKS

In its Decision On Appeal dated August 2, 2010, the Board Of Patent Appeals And Interferences reversed all prior art rejections made by the Examiner in the Final Action dated May 1, 2008. However, starting at page 7 of the Decision On Appeal, the Board raised a new ground of prior art rejection pursuant to 37 C.F.R. 41.50(b). Applicant has elected to reopen prosecution of this patent application, pursuant to 37 C.F.R. 41.50(b)(1), to address the new ground of prior art rejection raised by the Board.

More specifically, claim 1 now stands rejected under 35 U.S.C. Section 103(a) as being unpatentable over the Arvidsson publication (WO 02/057591) in view of the Sanderson patent (U.S. Patent No. 1, 994, 792). The Sanderson patent was applied, in combination with another reference, to reject the claim during the prosecution of this patent application. The Arvidsson publication was cited by Applicant in an Information Disclosure Statement filed on June 16, 2005, and is also discussed as background material at page 1, third paragraph, of Applicant's Specification.

Independent claim 1 has now been revised to expressly recite that locking device of the claimed coupling sleeve is in a loaded (locked) position only when the rock drilling machine is rotated in a direction to disconnect the coupling sleeve from the rock bolt, but the locking device is unloaded (unlocked) when percussion energy is transmitted from the rock drilling machine to the rock bolt through the coupling sleeve during a percussion operation.

The revision to independent claim 1 is supported by Applicant's original disclosure, at, for example, page 2, last paragraph, which discloses that the locking device is unloaded during drilling, but the locking device is loaded when the rock drilling machine is rotated in the direction to separate the rock bolt from the coupling sleeve while preventing the rock drilling machine from separating from the coupling sleeve.

Accordingly, the device defined by independent claim 1, as amended herein, including a coupling sleeve having a first part for connection to a rock bolt, a second part for connection to a rock drilling machine, and a locking device which is unloaded (unlocked) during a percussion operation when percussion energy is transmitted from the rock drilling machine to the rock bolt, but in which the locking device is loaded (locked) only when the drilling machine is rotated in a direction for disconnecting the rock bolt from the coupling sleeve, but retains the rock drilling machine connected to the coupling sleeve. Thus, the locking device is loaded (locked) to engage the drilling machine only when needed (when the coupling sleeve is to be disconnected from the rock bolt, but the rock drilling machine is to remain connected to the coupling sleeve) but is unloaded (unlocked) to be disengaged from the rock drilling machine when not needed (during a percussion operation when percussion energy is transmitted from the rock drilling machine to the rock bolt).

The device disclosed by Applicant, and now more clearly defined by independent claim 1 as discussed above, results in numerous advantages. Among other things, since the locking device is unloaded (unlocked) and thus disengaged from the rock drilling machine during a

percussion operation in which percussion energy is transmitted from the rock drilling machine to the rock bolt through the coupling sleeve, wear on the locking device is significantly reduced, thereby increasing the operating efficiency of the locking device of the coupling sleeve. This occurs because the locking device is not subject to the percussion energy generated and transmitted during the percussion/drilling operation of the drilling machine. The claimed device now expressly separates the locking function from the drilling function by unloading (unlocking) the locking device during a drilling/percussion operation, while loading (locking) the coupling sleeve to the drilling machine only when the rock bolt is to be disconnected from the coupling sleeve while the drilling machine is to be retained connected to the coupling sleeve.

Turning now to the two applied prior art references, the Arvidsson publication, discussed as background material at page 1 of Applicant's Specification, discloses a device in which a coupling sleeve has a slot 7 for receiving a portion of a rock drilling machine, and a clamping device 8 for compressing the slot 7 to clamp the rock drilling machine to the coupling sleeve. The use of a clamping device squeezes the threads of the portion of the rock drilling machine received in the slot 7 of the coupling sleeve, which can be undesirable in certain instances. More importantly, the clamping means 8 of the coupling sleeve disclosed by the Arvidsson publication engages the portion of the rock drilling machine received within the slot 7 at all times, both during percussion/drilling operations and during separation of the rock bolt from the coupling sleeve.

The Sanderson patent has been discussed throughout the prosecution of this patent application, including the Appeal Brief filed on September 18, 2008. More specifically, the Sanderson patent does not teach or suggest: 1). a coupling sleeve for connecting a rock drilling machine to a rock bolt for disconnecting the rock bolt from the coupling sleeve for reinforcing a rock; 2). the arrangement of a locking device in the coupling sleeve which is in its unloaded state during normal drilling operations to permit transmission of percussion energy between the rock drilling machine and the rock bolt through the coupling sleeve disposed therebetween; and 3). the arrangement of a locking device in the coupling sleeve, which in its loaded state, permits the rock bolt to be disconnected from one end of the coupling sleeve by rotation of the rock drilling machine in a direction for loosening the thread connection between the coupling sleeve and the rock bolt, while preventing loosening of the threaded connection between the rock drilling machine and the coupling sleeve when the rock drilling machine is rotated in the loosening direction.

Most importantly, the dowel 15 disclosed by the Sanderson patent is in its loaded, locked, engaged position at all times, including during drilling operations. Thus, Sanderson fails to teach or suggest the structure or structural arrangement defined by independent claim 1, as amended herein, or recognize the functional advantages resulting therefrom.

Applicant respectfully submits that since neither the Arvidsson publication or the Sanderson patent teaches or suggests a coupling sleeve having a locking device which is only loaded (locked) to engage a drilling machine when the drilling machine is rotated in a direction

to disconnect a rock bolt from the coupling sleeve, but the locking device is in an unloaded (unlocked) position disengaged from the drilling machine during percussion/drilling operations, a combination of the two references likewise cannot teach or suggest this feature of the invention. Moreover, neither the Arvidsson publication or the Sanderson patent recognizes the advantages of the device disclosed by Applicant, and now expressly defined by independent claim 1, namely, locking engagement of the coupling sleeve with the rock drilling machine only when necessary for the purpose of disconnecting the rock bolt from the coupling sleeve while preventing disconnection of the drilling machine from the coupling sleeve, while the locking device is unloaded (unlocked) during drilling/percussion operations for reducing wear/stress on the locking device to enhance the efficiency and useful life of the claimed device.

Since neither the Arvidsson publication or the Sanderson patent disclose this feature of the invention, Applicant respectfully submits that there is clearly no teaching or suggestion in the prior art itself, or within the common knowledge of a person of ordinary skill in the relevant art, to combine the two references in any manner rendering independent claim 1, as amended herein, obvious when all positively recited features of the claim are considered in the patentability determination. See, for example, *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir. 1992); *Micro Chemical Co., Inc. v. Great Plains Chemical Co., Inc.*, 41 USPQ2d 1238 (Fed. Cir. 1997).

Moreover, since neither the Arvidsson publication or the Sanderson patent teaches or suggests a locking device of a coupling sleeve arranged to engage a rock drilling machine only when a rock bolt is to be disconnected from the coupling sleeve but does not engage the rock


drilling machine during percussion/drilling operations, the coupling sleeve defined by independent claim 1, as amended herein, cannot be considered to be a mere substitution of one element for another which does no more than yield a predictable result. KSR International Co., v. Teleflex Inc., 550 U.S. 398 (2007).

Applicant respectfully submits that the coupling sleeve defined by independent claim 1, as amended herein, is allowable over the two combined references applied in the new ground of prior art rejection by the Board of Patent Appeals and Interferences in its Decision on Appeal dated August 2, 2010.

Newly added dependent claim 2 is directed to the preferred embodiment of the invention disclosed in Applicant's Specification. Support for this claim is found at page 2, first paragraph, of Applicant's Specification, as originally filed. Applicant respectfully submits that dependent claim 2 is allowable, at least for the same reasons as parent independent claim 1.

Applicant respectfully submits that this patent application is in condition for allowance, and favorable action is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Mark P. Stone', written in a cursive style.

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